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Ligard

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(54) **STAND FOR LOADED FIREARM**

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B60R 7/14 (2006.01)

(52) **U.S. Cl.** **42/70.11**; 211/64

(58) **Field of Classification Search** 42/70.11; 211/64; 224/912, 913
See application file for complete search history.

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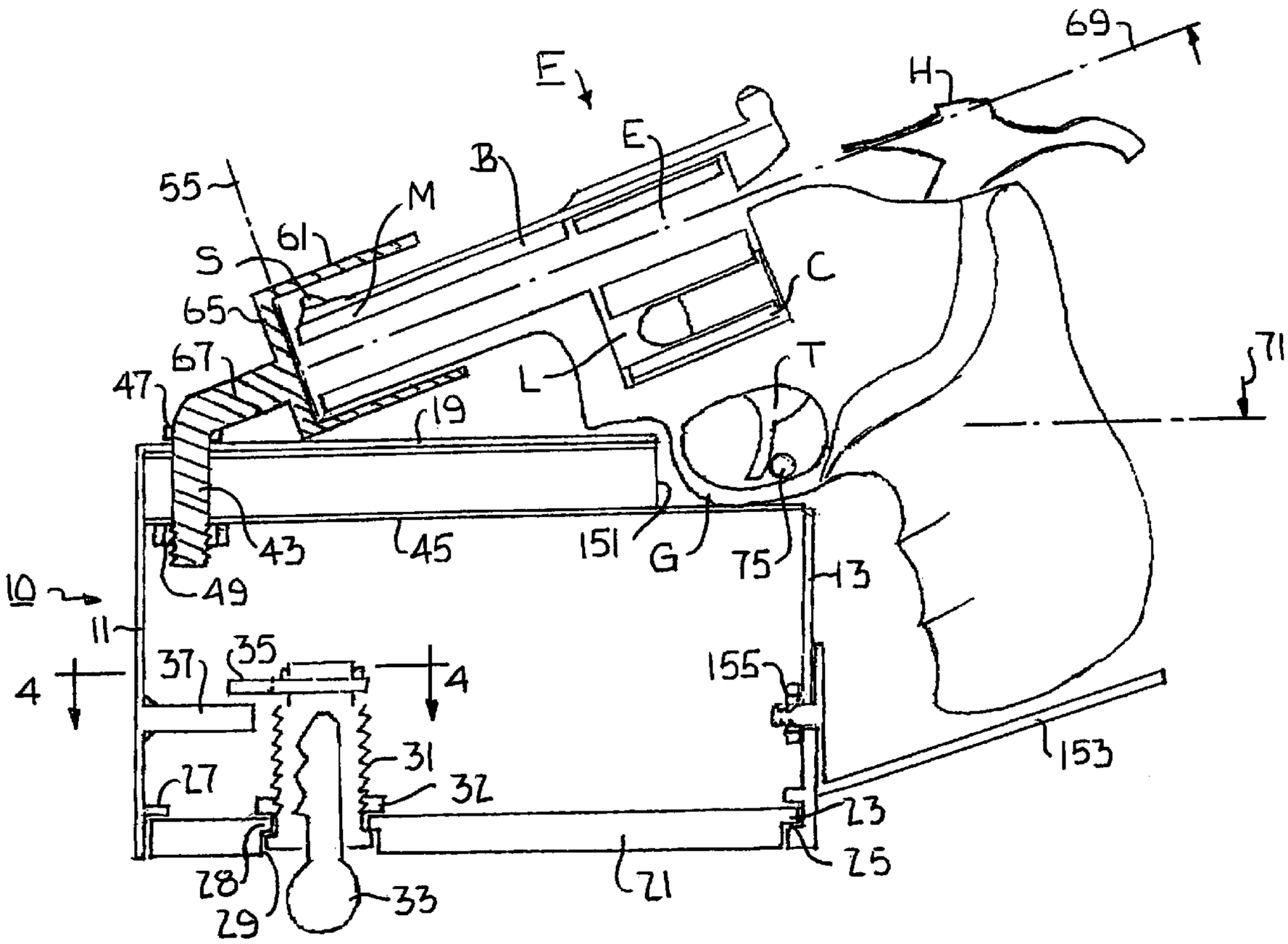
(57) **ABSTRACT**

A stand secures a loaded firearm in an inoperable condition for quick release to an authorized user in the event of an emergency. A housing serves as a base for the stand. A mechanism fixed to the housing prevents the firearm from firing. For example, a rod fixed to the housing is inserted through the muzzle and into the bore until it extends into an empty chamber of a revolver or into the receiver of an automatic pistol. Another mechanism mounted on the housing is operable between a first position in which it permits engagement of the firearm on and disengagement of the firearm from the rod and a second position in which it prevents disengagement of the firearm from the rod. The operating mechanism may be actuated manually by a key or electronically by a key pad, a fingerprint recognition pad or the like.

19 Claims, 7 Drawing Sheets



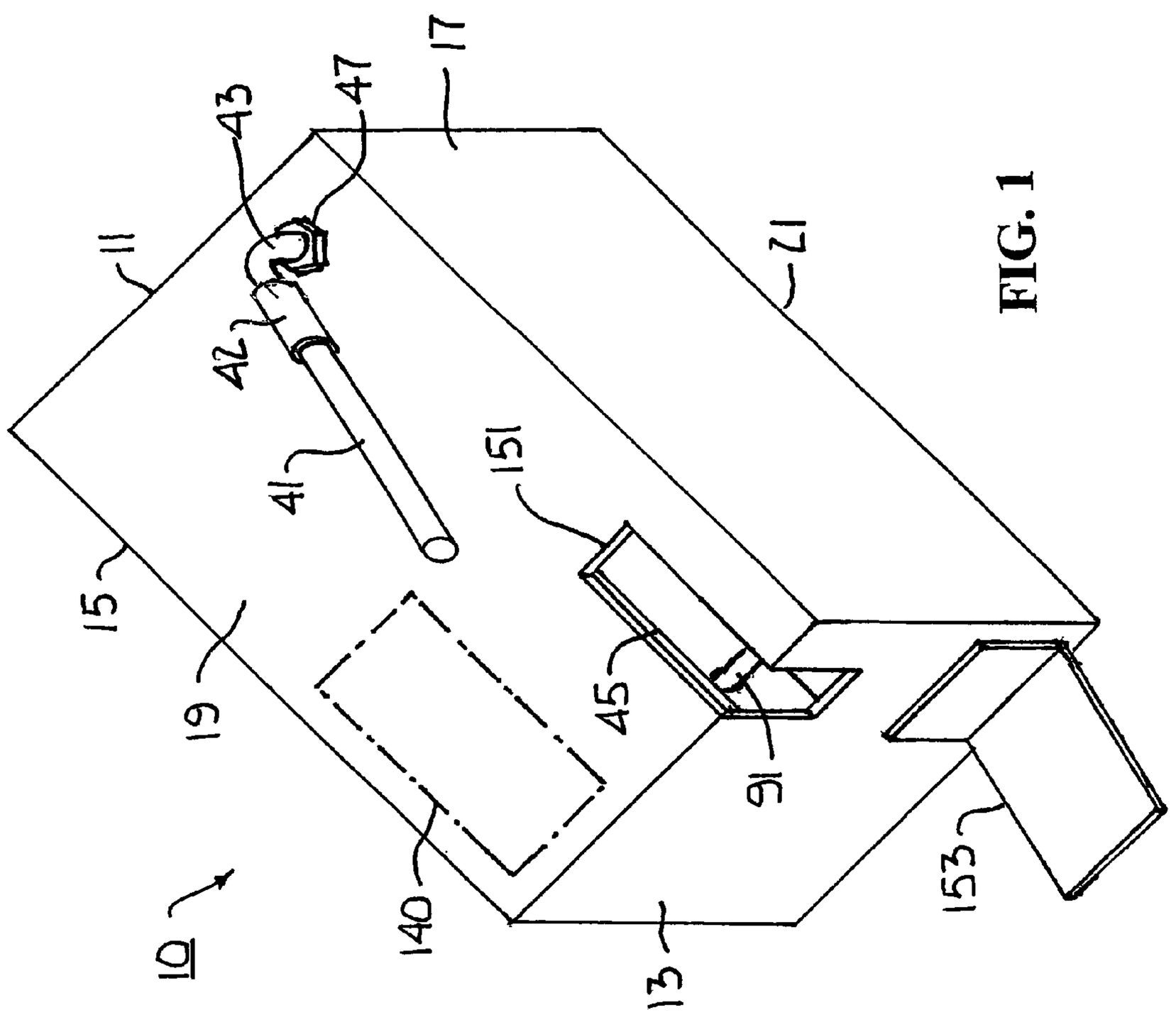


FIG. 1

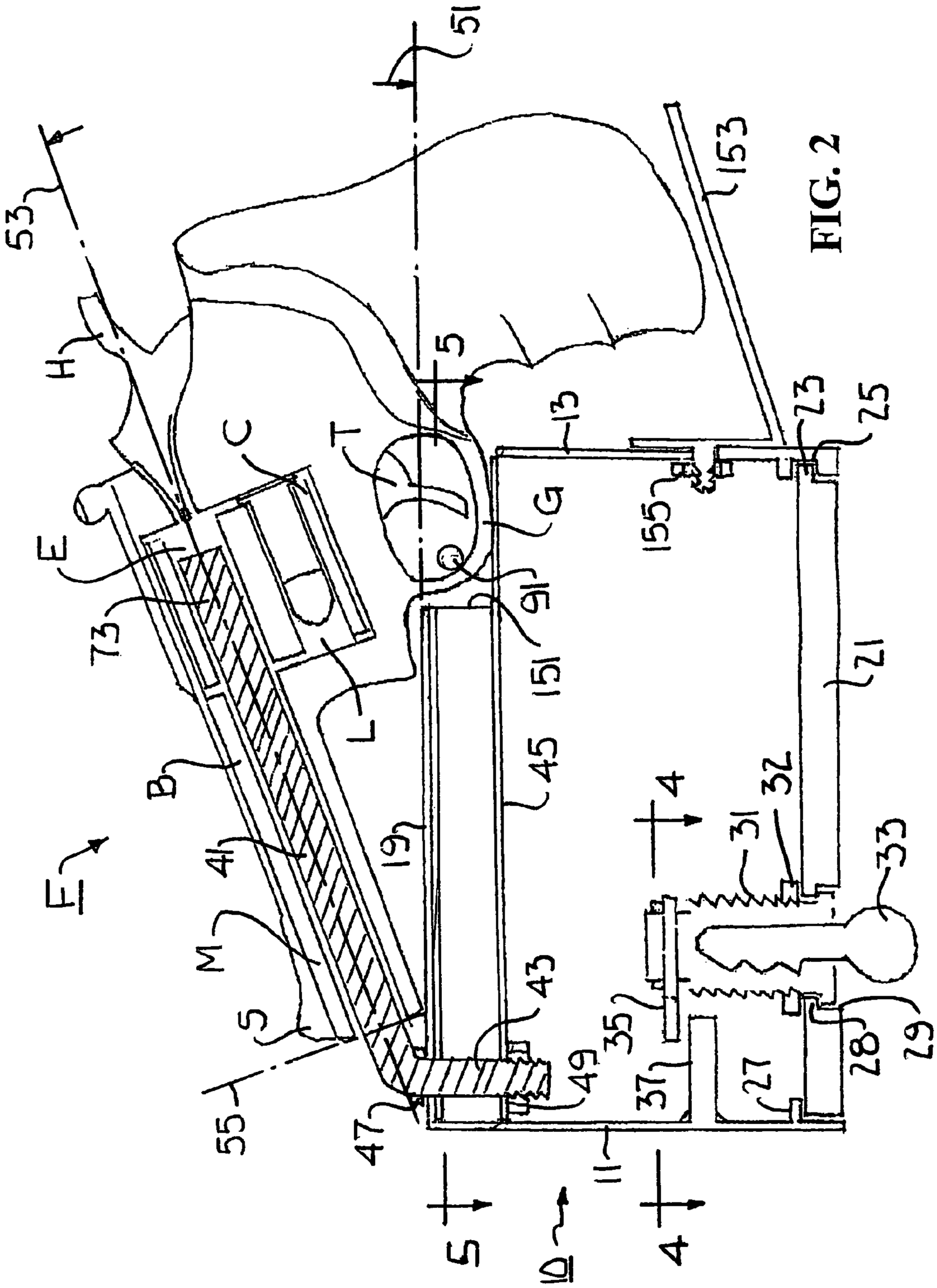

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FIG. 2

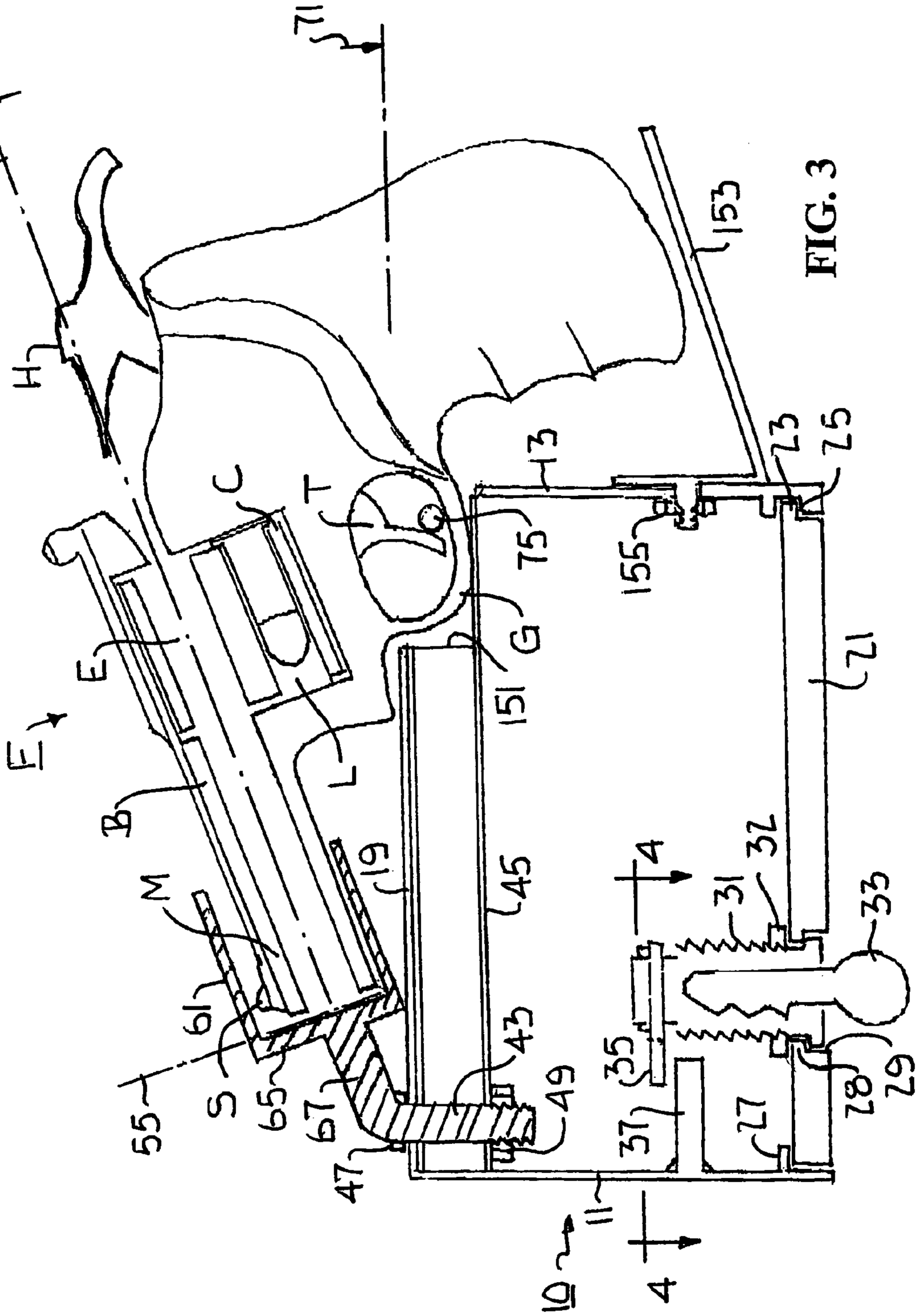
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FIG. 3

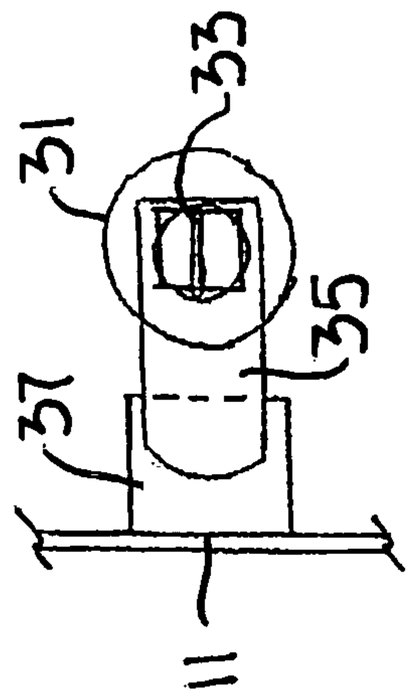

FIG. 4

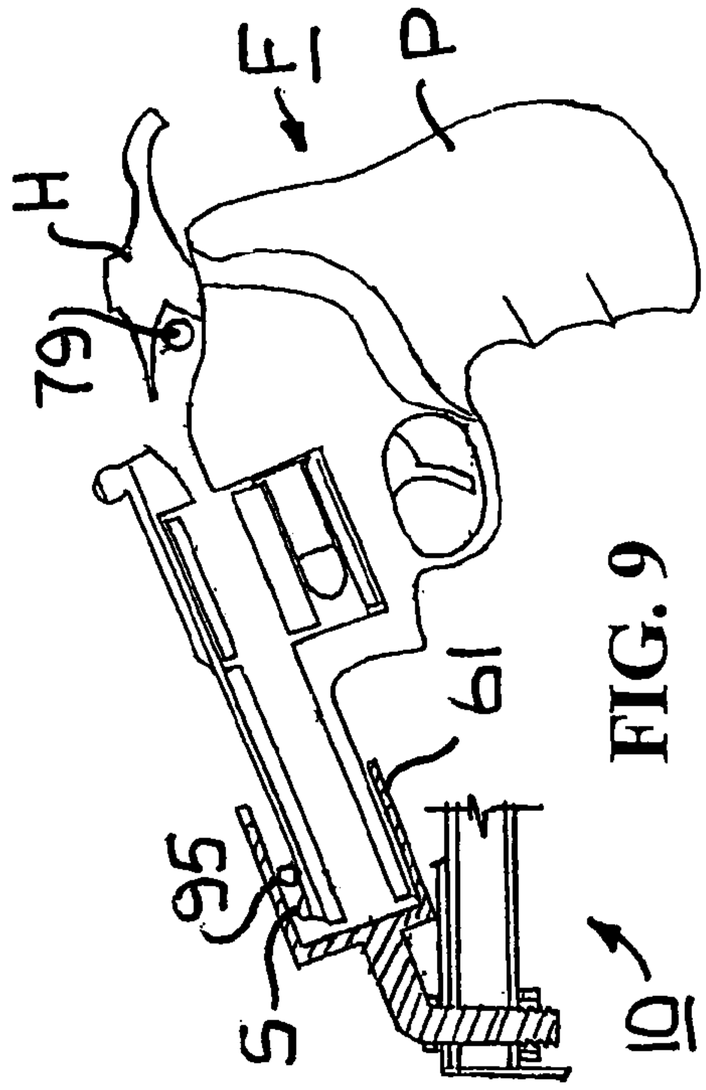

FIG. 9

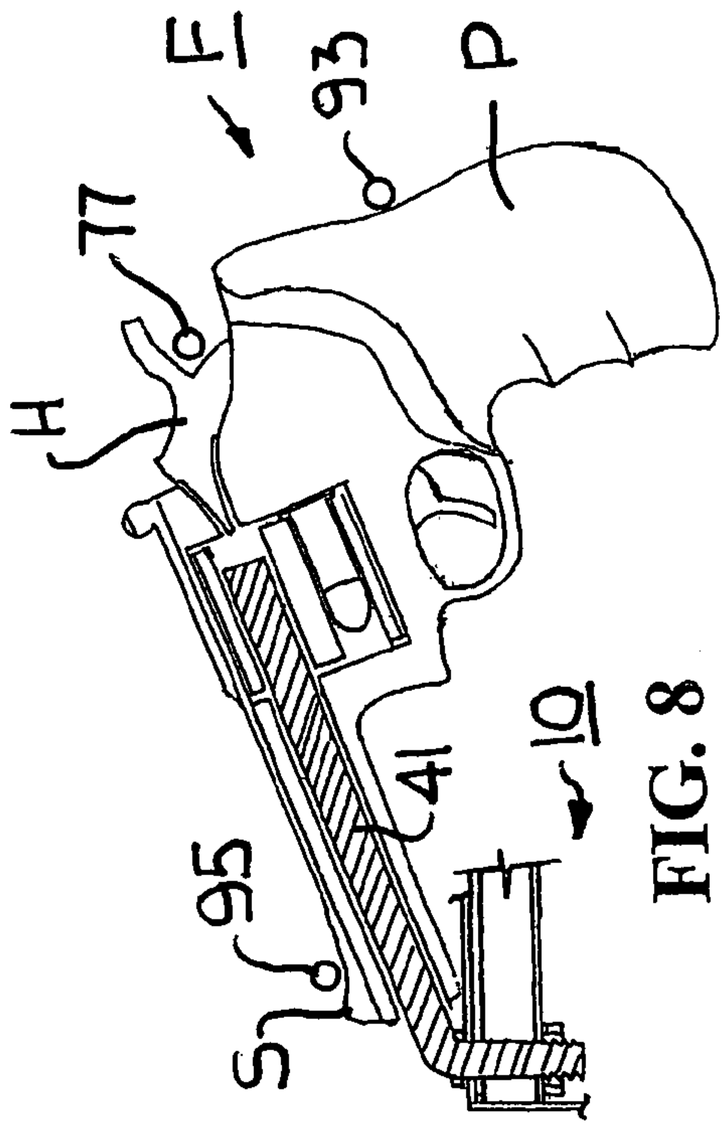

FIG. 8

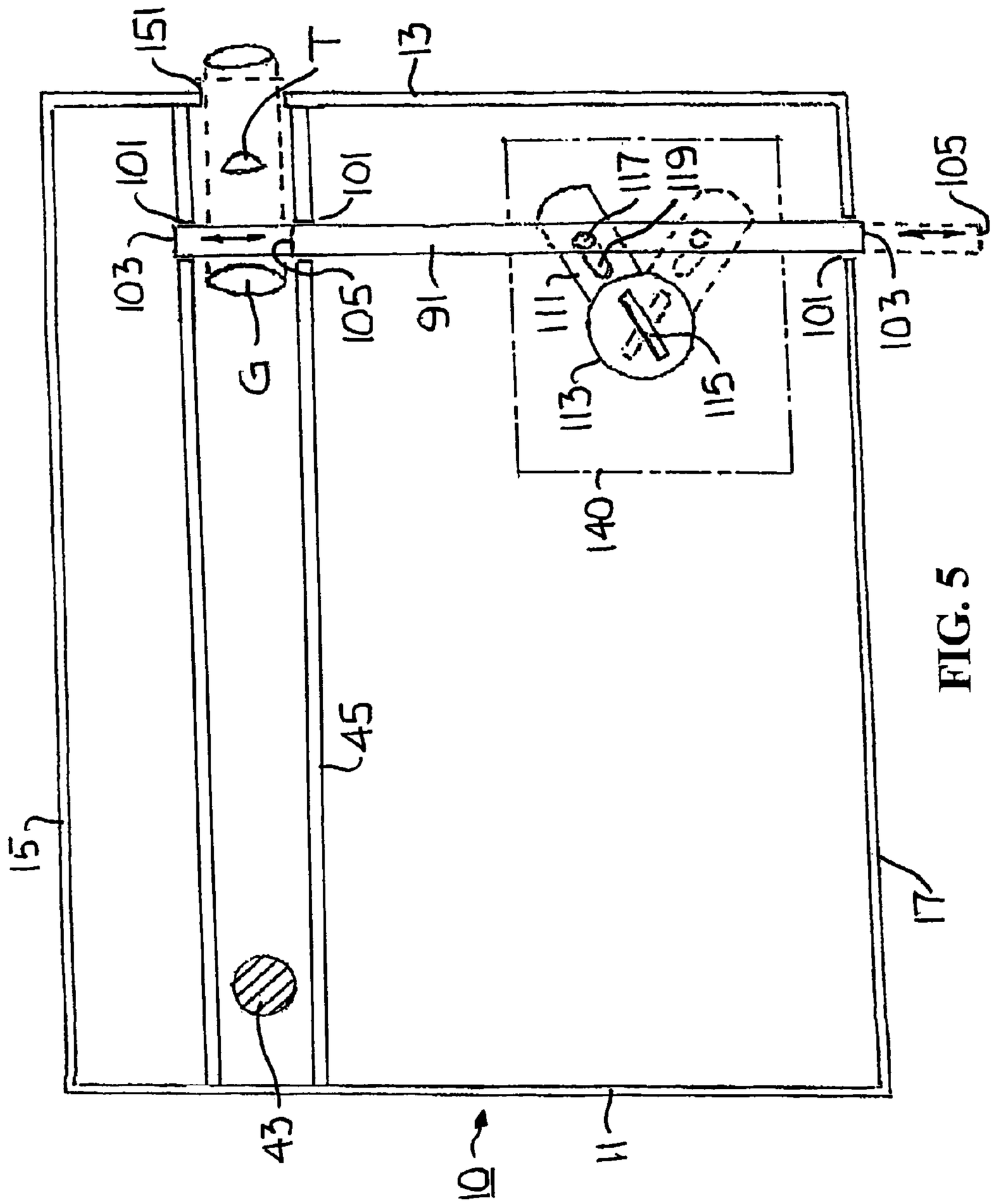
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FIG. 5

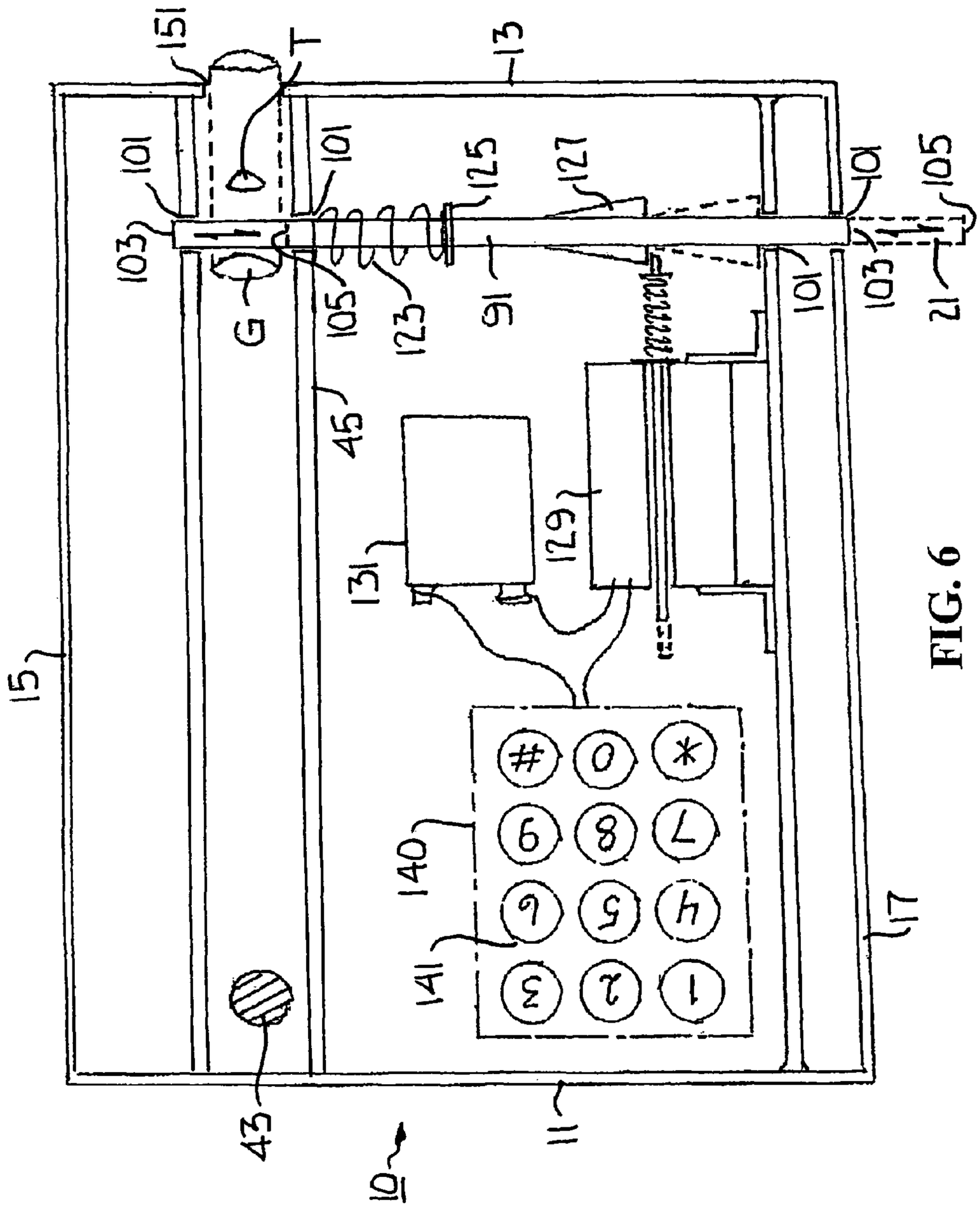
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FIG. 6

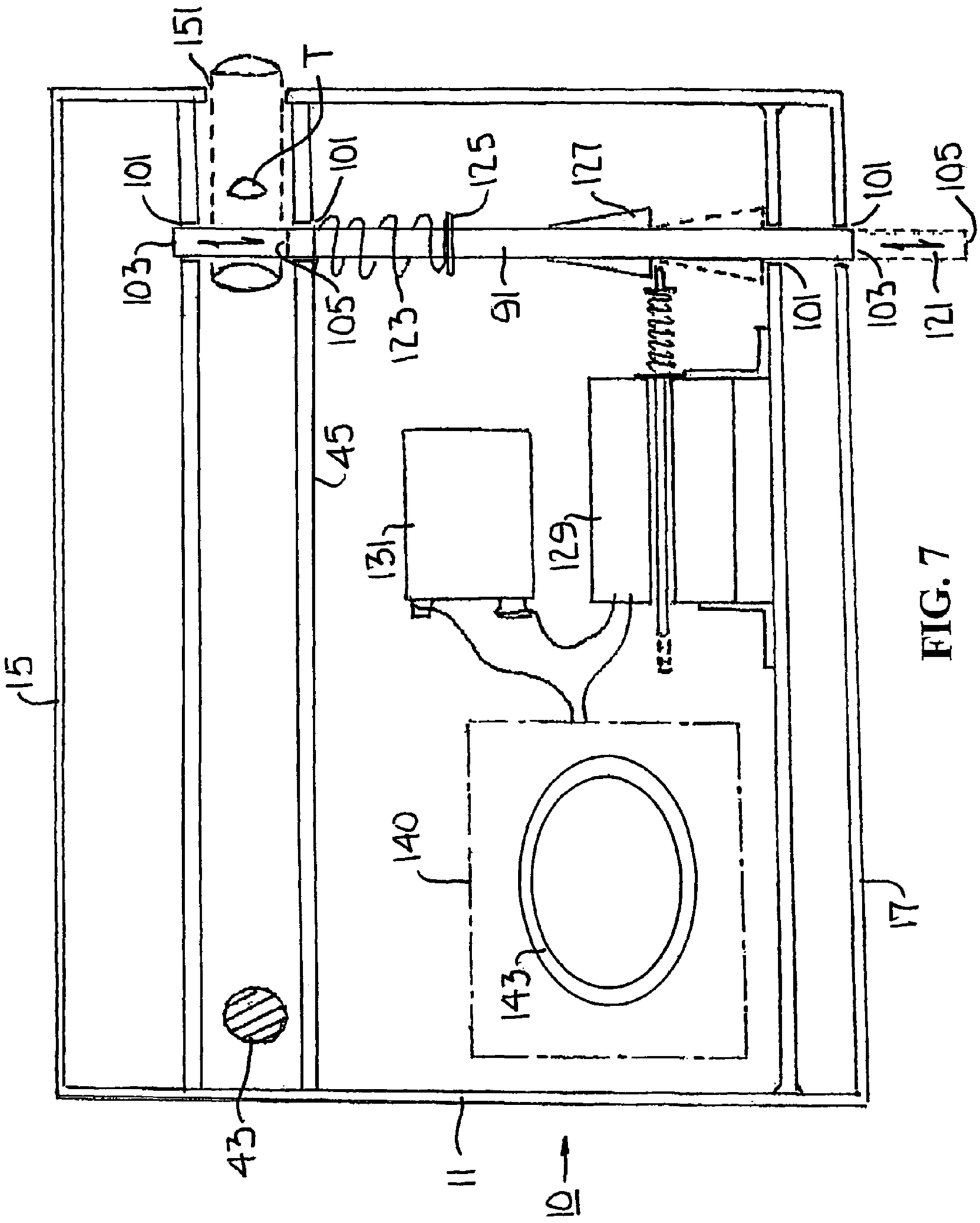
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FIG. 7

STAND FOR LOADED FIREARM

BACKGROUND OF THE INVENTION

This invention relates generally to accessories for firearms and more particularly concerns accessories for storing firearms not in use.

It is fairly common practice to keep a firearm in a residence or business location for the purpose of self-protection. Given the purpose for having the firearm, keeping it in an unloaded condition is hardly practical. On the other hand, keeping a loaded firearm in an insecure environment is also impractical.

It is, therefore, an object of this invention to provide a stand for a loaded firearm which will store the firearm in a readily accessible location. Another object of this invention is to provide a loaded firearm stand which can be permanently mounted on a relatively immovable object. Yet another object of this invention is to provide a loaded firearm stand which resists unauthorized disengagement of the firearm from the stand. A further object of this invention is to provide a loaded firearm stand which readily permits disengagement of the firearm from the stand by an authorized user.

SUMMARY OF THE INVENTION

In accordance with the invention, a stand is provided which secures a loaded firearm in an inoperable condition for quick release to an authorized user in the event of an emergency. A housing serves as a base for the stand.

A mechanism fixed to the housing prevents the firearm from firing. For example, a rod is fixed at one end to the housing and is oriented on the housing so that its other end can be inserted through the muzzle and into the bore until it extends into an empty chamber of a revolver or into the receiver of an automatic pistol. The extension of the rod into the empty chamber or receiver prevents firing of the firearm. Preferably, the rod is of adjustable length and the adjustable components of the rod are located and contoured for disposition within the bore when the rod extends into the empty chamber or receiver, so as to minimize any possibility of tampering with the adjustable components.

Another mechanism mounted on the housing is operable between two positions. In its first position, it permits engagement of the firearm on and disengagement of the firearm from the firing prevention mechanism. In its second position, it prevents disengagement of the firearm from the firing prevention mechanism. The mechanism preventing disengagement of the firearm from the firing preventing mechanism may, for example, be a slide reciprocally movable on the housing between two positions. In the first position, the path of removal of the firearm from the rod is cleared. In the second position, the path of removal of the firearm from the rod is obstructed. Obstruction can be accomplished in the second position by having the slide abut a rear portion of the firearm, such as a rear portion of the hammer, the trigger guard, the trigger or the slide.

The disengagement preventing mechanism may, alternatively, be the combination of a seat in the housing which receives the trigger guard when the rod is fully inserted into the firearm and a slide which reciprocates in the housing between the first and second positions. The slide clears the path of removal of the trigger guard from the seat in the first position and obstructs the path of removal of the trigger guard from the seat in the second position.

In the case of an in-housing disengagement preventing mechanism, an externally accessible operating mechanism is fixed to the housing for switching the slide between the first

and second positions. In one embodiment, a key may be used to rotate an externally accessible key cylinder operably connected by a linkage to the slide. In another embodiment, the slide may extend externally of the housing and be manually pushable against a bias with a latching mechanism automatically securing the slide in the second position until a latch releasing mechanism allows the slide to be reciprocated by the bias to the first position. The automatic latching mechanism may be a solenoid biased toward engagement with the slide and the releasing mechanism may be an electronic controller disengaging the solenoid from the slide. The electronic controller may be a key pad, a fingerprint recognition pad or the like.

For automatic pistols another mechanism, such as a bracket mounted and oriented on the housing to extend below the butt of the pistol in the second condition, may also be used to prevent removal or insertion of a clip from the pistol grip.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings in which:

FIG. **1** is a perspective view of a first embodiment of the firearm stand:

FIG. **2** is a cross-sectional view of the stand of FIG. **1** taken in a vertical plane extending diametrically through the barrel of a revolver mounted thereon;

FIG. **3** is a cross-sectional view of another embodiment of the firearm stand taken in a vertical plane extending diametrically through the barrel of a revolver mounted thereon;

FIG. **4** is a cross sectional view taken along the line **4-4** of FIGS. **2** and **3**;

FIG. **5** is a cross-sectional view taken along the line **5-5** of FIG. **2** and illustrating a key operated embodiment of the stand;

FIG. **6** is a cross-sectional view taken along the line **5-5** of FIG. **2** and illustrating a key pad operated embodiment of the stand;

FIG. **7** is a cross-sectional view taken along the line **5-5** of FIG. **2** and illustrating a fingerprint pad operated embodiment of the stand;

FIG. **8** is a cross sectional view taken in a vertical plane extending diametrically through the barrel of an uncocked revolver mounted on the stand of FIG. **2** and illustrating possible alignments of the firing prevention and/or firearm disengagement mechanisms; and

FIG. **9** is a cross sectional view taken in a vertical plane extending diametrically through the barrel of a cocked revolver mounted on the stand of FIG. **3** and illustrating possible alignments of the firing prevention and/or firearm disengagement mechanisms.

While the invention will be described in connection with several embodiments thereof, it will be understood that it is not intended to limit the invention to those embodiments or to the details of the construction or arrangement of parts illustrated in the accompanying drawings.

DETAILED DESCRIPTION

Turning first to FIG. **1**, the loaded firearm stand includes a base **10** which supports and/or contains the other components of the stand. The base **10** shown is a box-like housing having front **11**, rear **13**, left side **15**, right side **17** and top **19** walls. The walls may be steel or any other suitable material of corresponding thickness to inhibit violent access to the con-

tents of the housing or distortion of the alignment of its structural components. The base **10** need not necessarily be box-like or orthogonal.

Looking at FIGS. **2** and **3**, the base **10** also has a removable bottom cover **21** which closes the housing. As shown, the cover **21** hinges at one end **23** in a groove **25** in the lower inside surface of the rear wall **13** into abutment against a seat **27** along the lower inside surface of the front wall **11**. Looking also at FIG. **4**, a lock cylinder **31** is mounted on the cover **21**. A lock ring **32** threaded on the cylinder **31** engages the cylinder **31** against a flange **28** of an opening **29** in the cover **21**. The keyway is accessible to the key **33** from outside of the housing and the linkage **35** rotates within the housing to engage a flange **37** on the inside surface of the front wall **11** to lock the cover **21** to the base **10**. Other cover configurations and methods of operation can be used, provided the resulting locked housing inhibits violent access to the contents of the housing or distortion of the alignment of the structural components.

Continuing to look at FIGS. **2** and **3**, the stand also includes a mechanism mounted on the base **10** for limiting engagement and disengagement of the firearm F to and from the base **10** to forward and rearward axial motion, respectively, of the firearm F relative to the base **10**. In the embodiment of FIG. **2**, the motion restricting mechanism is a rod **41** fixed at one end **43** to the base **10**. As shown, a reinforcing tube **45** is mounted against the underside of the top wall **19** of the base **10** and the end **43** of the rod **41** extends through holes in the top wall **19** and the reinforcing tube **45** into the housing. Exterior and interior lock nuts **47** and **49** secure the rod **41** in place on the base **10**. The exposed portion of the rod **41** is oriented at an angle **51** for insertion into the muzzle M of the firearm F. The barrel B of the firearm F restricts motion of the firearm F on the rod **41** to motion along the rod axis **53**. The forwardmost position **55** of the firearm F on the rod is determined by contact of the trigger guard G against the reinforcing tube **151** or by contact of the muzzle M on the top wall **19** of the base **10** depending on the length of the barrel B. Once on the rod **41** in the forwardmost position **55**, axial motion of the firearm F is substantially limited to reward motion on the axis **53**.

As best seen in FIG. **1**, the rod **41** is of adjustable length. For example, one or more threaded extensions **42** can be used to extend the rod **41** or replace an extension of different length. The adjustable components **42** of the rod **41** are located and contoured for disposition within the barrel B so as to minimize any possibility of tampering with the adjustable components **42**. In the embodiment of FIG. **3**, the motion restricting mechanism is a sleeve **61** fixed at one end to the base **10**. As shown, the mounting end **43** of a rod is secured to the base **10** in the same manner as the rod **41** was secured to the base **10** in FIG. **2**. The closed forward end **65** of the sleeve **61** is fixed to the exposed end **67** of the rod with the sleeve axis **69** oriented at an angle **71** to receive the nozzle M of the firearm F. The forwardmost position **55** of the firearm F in the sleeve **61** is determined by contact of the trigger guard G against the reinforcing tube **151** or by contact of the muzzle M with the closed end **65** of the sleeve **61** depending on the length of the barrel B. Once in the sleeve **61** in the forwardmost position **55**, axis motion of the firearm F is substantially limited to rearward motion on the axis **69**. Other mechanisms may be used to limit axis motion of the firearm F. The materials and dimensions of the components of any axial motion limiting mechanism must be such as to inhibit violent distortion of the alignment of its structural components.

Considering FIGS. **2**, **3**, **8** and **9**, the stand also includes a mechanism cooperable with the firearm F in a loaded condition to prevent firing of the firearm F when the firearm F is in the fixed forwardmost position **55** on the base **10**. As seen in FIG. **2**, the anti-firing mechanism is an extension **73** of the rod **41** into an empty chamber E of the firearm F. The rod extension **73** prevents rotation of a revolver cylinder C which would align a loaded chamber L for firing. Similarly, the extension **73** of the rod **41** into the empty chamber of an automatic pistol would prevent a shell from being fed from a clip or magazine into the chamber. As seen in FIG. **3**, the anti-firing mechanism is a pin **75** mounted for reciprocal travel into and out of abutment with the back of the trigger T of the firearm F along an axis transverse, as shown perpendicular, to the axis **69**. The pin **75** prevents the trigger T from being pulled sufficiently to fire the firearm F. Looking at FIGS. **8** and **9**, similar arrangements of pins **77** and **79** behind an uncocked hammer H and in front of a cocked hammer H, respectively, will prevent the hammer H from moving sufficiently to fire the firearm F. Again, the materials and corresponding dimensions of any components of the anti-firing mechanism must be such as to inhibit violent distortion of the alignment of its structural components.

Still considering FIGS. **2**, **3**, **8** and **9**, the stand further includes a mechanism mounted on the base **10** and operable along an axis transverse, as shown perpendicular, to the axial motion of the firearm F. This mechanism operates between a first position in which the firearm F can move axially to and from its fixed fowardmost position **55** on the base **10** and a second position in which the firearm F cannot move axially rearwardly from its fixed forwardmost position sufficiently to disengage the anti-firing mechanism and permit firing of the firearm F. As seen in FIG. **2**, the anti-release mechanism is a pin **91** mounted on the base **10** for reciprocal travel into and out of abutment with the back of the front wall of the trigger guard G of the firearm F along the transverse axis. As seen in FIG. **3**, the anti-release mechanism is the same pin **75** which serves as the anti-firing mechanism. As seen in FIG. **8**, the anti-release mechanism may be the same pin **77** which serves as the anti-firing mechanism behind an uncocked hammer H or a pin **93** which moves into and out of abutment with the back of the pistol grip P. As seen in FIGS. **8** and **9**, the anti-release mechanism may be a pin **95** which moves into and out of abutment with the back of the front sight S of the firearm F.

Looking at FIGS. **2** and **5-7**, the operation of the pins **75**, **77**, **79**, **91**, **93** and **95** as anti-firing or anti-release mechanisms or both can be understood in relation to the operation of the trigger guard anti-release pin **91** of FIG. **2**. The pin **91** is aligned to reciprocate in holes **101** in the structure of the base **10**. As shown, the holes **101** are in the reinforcing tube **45** and the right side wall **17**. Other structural members could be added to permit the desired reciprocal alignment of the pin **91** or any of the pins **75**, **77**, **79**, **93** or **95**. As shown, the pin **91** reciprocates between a first position **103** in which rearward axial motion of the trigger guard G and firearm F from the fixed forwardmost position **55** is permitted and a second position **105** in which rearward axial motion of the trigger guard G and firearm F from the fixed forwardmost position **55** is prevented.

As seen in FIGS. **5**, **6** and **7**, the stand also includes a mechanism for locking the anti-release mechanism in its anti-release position. In FIG. **5**, the operation of the pin **91** can be accomplished, for example, by operation of a rotating linkage **111** on a lock cylinder **113** manually rotated by use of a key **115**. A post **117** on the pin **91** is engaged in a slot **119** in the linkage **111**. Rotation of the key **115** causes reciprocation of the pin **91** between its first and second positions **103** and **105** and removal of the key **115** leaves the pin **91** locked in its second position. In FIGS. **6** and **7**, as further examples, the

operation of the pin **91** can be accomplished by manually pushing an exposed end **121** of the pin **91** inwardly against the bias of a spring **123** compressed between the reinforcing tube **45** and a stop ring **125** on the pin **91** until a stop member or cone **127** on the pin **91** is engaged by a solenoid **129** mounted in the base **10** to hold the pin **91** in the first position **103**. The solenoid **129** is powered by an electrical source such as a battery **131** in the housing so that, when energized, the solenoid **129** releases the pin **91** to the bias of the spring **123**, returning the pin **91** to its second position **105**. Until the solenoid **129** is engaged, the pin **91** remains locked in its second position.

Returning to FIG. **1**, the stand includes a member **140** externally accessible on the base **10** for unlocking the locking mechanism to permit authorized removal of the firearm F from the stand. By way of example, as seen in FIG. **5**, the accessible member is the lock cylinder key hole **116**. As seen in FIG. **6**, the accessible member is an electronic key pad **141** in the circuit of the solenoid **129**. As seen in FIG. **7**, the accessible member is an electronic fingerprint reader **143**. Except for the accessible operating member, the unlocking and locking mechanism is contained within the housing.

As seen in FIGS. **1-3** and **5-7**, the pin **91** in the second position **103** of the anti-release mechanism is entirely within the base **10**. As best seen in FIG. **1**, a slot **151** is provided in the base **10** to receive the trigger guard G. The external structure of the base **10** can be similarly modified to enclose any of the pins **75**, **77**, **79**, **93** and **95**. Furthermore, as best seen in FIGS. **1-3**, a bracket **153** can be mounted on the exterior of the rear wall **13** of the base **10**, as by use of one or more nuts **155**, to obstruct the magazine or clip passage of an automatic pistol.

The stand can be disguised to some extent by combination in a lamp, clock or telephone stand or the like. It can be mounted on furniture or a wall or the like or be free standing. For example, the cover **21** may be secured to a suitable object, such as the top of a night table (not shown), by bolts (not shown). A hole can be drilled through the night table which is aligned with the lock cylinder **31**. Thus, the cover **21** can be bolted to the night table and the base **10** can be locked to the cover **21** or unlocked and removed from the cover **21**.

Thus it is apparent that there has been provided, in accordance with the invention, a stand for a loaded hand gun that fully satisfies the objects, aims and advantages set forth above. While the invention has been described in conjunction with several embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art and in light of the foregoing description. Accordingly, it is intended to embrace all such alternative, modifications and variations as fall within the spirit of the appended claims.

What is claimed is:

1. A stand for a firearm comprising;

a base;

means mounted on said base for limiting engagement and disengagement of the firearm to and from said base to forward and rearward axial motion, respectively, of the firearm to and from a fixed forwardmost position of the firearm relative to said base;

means cooperable with said firearm in a loaded condition to prevent firing of the firearm when the firearm is in said fixed forwardmost position on said base; and

means mounted on said base and operable along an axis transverse to said firearm axial motion between a first position for permitting said axial motion of the firearm to and from said fixed forwardmost position and a second position for preventing said rearward axial motion of the firearm from said fixed forwardmost position,

said base having means mounted thereon for preventing insertion and removal of a magazine into and from a butt end of the firearm.

2. A stand according to claim **1**, said means for limiting comprising a rod fixed at one end to said base and oriented for insertion at another end into a muzzle of the firearm.

3. A stand according to claim **1**, said means for limiting comprising a sleeve fixed at one end to said base and oriented for insertion into another end of said sleeve of a muzzle of the firearm.

4. A stand according to claim **1**, said means for limiting comprising a rod fixed at one end to said base and oriented for insertion at another end into a muzzle of the firearm and said means for cooperating comprising an extension of said rod into an empty chamber of the firearm.

5. A stand according to claim **1**, said means for cooperating comprising a pin mounted on said base for reciprocal travel along an axis transverse to said single axis into and out of abutment with a back of a trigger of the firearm.

6. A stand according to claim **1**, said means for cooperating comprising a pin mounted on said base for reciprocal travel along an axis transverse to said single axis into and out of abutment with a front of a cocked hammer of the firearm.

7. A stand according to claim **1**, said means for cooperating comprising a pin mounted on said base for reciprocal travel along an axis transverse to said single axis into and out of abutment with a back of an uncocked hammer of the firearm.

8. A stand according to claim **1**, said means for permitting and preventing comprising a pin mounted on said base for reciprocal travel along said transverse axis into and out of abutment with a back of a trigger of the firearm.

9. A stand according to claim **1**, said means for permitting and preventing comprising a pin mounted on said base for reciprocal travel along said transverse axis into and out of abutment with a back of a front wall of a trigger guard of the firearm.

10. A stand according to claim **1**, said means for permitting and preventing comprising a pin mounted on said base for reciprocal travel along said transverse axis into and out of abutment with a back of a grip of the firearm.

11. A stand according to claim **1**, said means for permitting and preventing comprising a pin mounted on said base for reciprocal travel along said transverse axis into and out of abutment with a back of an uncocked hammer of the firearm.

12. A stand according to claim **1**, said means for permitting and preventing comprising a pin mounted on said base for reciprocal travel along said transverse axis into and out of abutment with a back of a front sight of the firearm.

13. A stand according to claim **1**, said base being configured to contain said means for cooperating with said firearm.

14. A stand according to claim **1**, said base being configured to contain said means for permitting and preventing.

15. A stand according to claim **1** further comprising means for locking and unlocking said means for permitting and preventing in and from, respectively, said second position.

16. A stand for a firearm comprising:

a base;

means mounted on said base for limiting engagement and disengagement of the firearm to and from said base to forward and rearward axial motion, respectively, of the firearm to and from a fixed forwardmost position of the firearm relative to said base;

means cooperable with said firearm in a loaded condition to prevent firing of the firearm when the firearm is in said fixed forwardmost position on said base;

means mounted on said base and operable along an axis transverse to said firearm axial motion between a first

position and a second position for preventing said rearward axial motion of the firearm from said fixed forwardmost position; and

means for locking and unlocking said means for permitting and preventing in and from, respectively, said second position, said means for locking and unlocking comprising a mechanically operable linkage connected between said permitting and preventing means and a key operated cylinder externally accessible on said base.

17. A stand for a firearm comprising:

a base;

means mounted on said base for limiting engagement and disengagement of the firearm to and from said base to forward and rearward axial motion, respectively, of the firearm to and from a fixed forwardmost position of the firearm relative to said base;

means cooperable with said firearm in a loaded condition to prevent firing of the firearm when the firearm is in said fixed forwardmost position on said base;

means mounted on said base and operable along an axis transverse to said firearm axial motion between a first position and a second position for preventing said rearward axial motion of the firearm from said fixed forwardmost position; and

means for locking and unlocking said means for permitting and preventing in and from, respectively, said second position, said means for locking and unlocking comprising an electromagnetically operable linkage connected between said permitting and preventing means and an electronic key pad externally accessible on said base.

18. A stand for a firearm comprising:

a base;

means mounted on said base for limiting engagement and disengagement of the firearm to and from said base to forward and rearward axial motion, respectively, of the firearm to and from a fixed forwardmost position of the firearm relative to said base;

means cooperable with said firearm in a loaded condition to prevent firing of the firearm when the firearm is in said fixed forwardmost position on said base;

means mounted on said base and operable along an axis transverse to said firearm axial motion between a first position and a second position for preventing said rearward axial motion of the firearm from said fixed forwardmost position; and

means for locking and unlocking said means for permitting and preventing in and from, respectively, said second position, said means for locking and unlocking comprising an electromagnetically operable linkage connected between said permitting and preventing means and an electronic fingerprint reader externally accessible on said base.

19. A stand for a firearm comprising:

a base;

means mounted on said base for limiting engagement and disengagement of the firearm to and from said base to forward and rearward axial motion, respectively, of the firearm to and from a fixed forwardmost position of the firearm relative to said base;

means cooperable with said firearm in a loaded condition to prevent firing of the firearm when the firearm is in said fixed forwardmost position on said base;

means mounted on said base and operable along an axis transverse to said firearm axial motion between a first position and a second position for preventing said rearward axial motion of the firearm from said fixed forwardmost position; and

means for locking and unlocking said means for permitting and preventing in and from, respectively, said second position, said base being configured to contain said means for locking and unlocking.

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